

WHAT IS CLAIMED IS:

1 1. A rotary disk storage device comprising:
2 a housing;
3 a rotary disk recording medium, said rotary disk recording medium having a
4 data area and being rotatable about a spindle shaft supported by a bottom of said housing;
5 a slider to which a head is attached to read data from said rotary disk recording
6 medium;
7 a suspension assembly to which said slider is attached;
8 an actuator assembly to which said suspension assembly is attached, said
9 actuator assembly being adapted to turn about a pivot shaft so that said head moves between
10 said data area and a retraction area, said pivot shaft being supported by the bottom of said
11 housing; and
12 a stopper including an elastic member, said elastic member being cantilevered
13 by a support rod and with a magnetic material embedded therein for attracting said actuator
14 assembly, wherein, when any portion of said actuator assembly comes into abutment against
15 said elastic member, the elastic member undergoes a moment of force so as to restrict an
16 excessive movement of said actuator assembly to an inner or an outer side, and cushions said
17 abutment.

1 2. The rotary disk storage device according to claim 1, further comprising
2 a ramp, wherein said actuator assembly causes said slider to be retracted in said ramp.

1 3. The rotary disk storage device according to claim 1, wherein said
2 retraction area is formed on said rotary disk recording medium, and said actuator assembly
3 causes said slider to be retracted to said retraction area.

1 4. The rotary disk storage device according to claim 1, wherein a coil
2 support of said actuator assembly is formed in a bifurcated shape, and said stopper is
3 disposed inside said bifurcated shape.

1 5. The rotary disk storage device according to claim 4, wherein the
2 portion of either the outer or the inner side of said elastic member of said stopper, against
3 which said actuator assembly turns into abutment, is formed in a shape having a shock
4 absorbing property that prevents rebounding of the actuator assembly upon abutment, while
5 the portion of the other outer or inner side of said elastic member, against which said actuator

assembly turns into abutment, is formed in a shape having a shock absorbing property that permits the actuator assembly to stop substantially in the same position upon abutment.

6. The rotary disk storage device according to claim 1, wherein a coil support of said actuator assembly is bifurcated, and wherein said stopper is disposed in one of two positions outside said bifurcated shape, while in the other position is disposed a stopper for restricting an excessive movement of said actuator assembly to the inner or the outer side.

7. The rotary disk storage device according to claim 1, wherein a coil support of said actuator assembly is formed in a bifurcated shape, and wherein said stopper is disposed on either the outer or the inner side of said bifurcated shape, while on the other side is disposed a stopper for restricting an excessive movement of said actuator assembly to the inner or the outer side.

8. The rotary disk storage device according to claim 7, wherein the portion of either the outer or the inner side of said elastic member as one of said stoppers for restricting an excessive movement of the actuator assembly to the outer side, against which the actuator assembly turns into abutment, is formed in a shape having a shock absorbing property that prevents rebounding of the actuator assembly upon abutment, while the portion of the other outer or inner side of said elastic member of the other stopper for restricting an excessive movement of the actuator assembly to the inner side, against which the actuator assembly turns into abutment, is formed in a shape having a shock absorbing property that permits the actuator assembly to stop substantially in the same position upon abutment.

9. The rotary disk storage device according to claim 6, wherein the portion of either the outer or the inner side of said elastic member as one of said stoppers for restricting an excessive movement of the actuator assembly to the outer side, against which the actuator assembly turns into abutment, is formed in a shape having a shock absorbing property that prevents rebounding of the actuator assembly upon abutment, while the portion of the other outer or inner side of said elastic member of the other stopper for restricting an excessive movement of the actuator assembly to the inner side, against which the actuator assembly turns into abutment, is formed in a shape having a shock absorbing property that permits the actuator assembly to stop substantially in the same position upon abutment.

1 10. The rotary disk storage device according to claim 1, wherein said
2 elastic member of said stopper, when fitted on said support rod, comes into pressure contact
3 with the support rod.

1 11. The rotary disk storage device according to claim 1, further comprising
2 a lower yoke and an upper yoke, with a voice coil motor being installed inside said lower and
3 upper yokes to rotate said actuator assembly, said lower and upper yokes imparting a
4 rotational force to said voice coil motor by virtue of a magnetic field, and wherein a rod
5 projecting from said lower or said upper yoke is used as said support rod.

1 12. The rotary disk storage device according to claim 1, further comprising
2 a swivel stop fitted in an insertion hole formed in said elastic member, said swivel stop being
3 disposed in such a position as prevents rotation of the elastic member centered on a support
4 point of said stopper.

1 13. The rotary disk storage device according to claim 1, further comprising
2 a swivel stop abutted against an outer surface of said elastic member, said swivel stop being
3 disposed in such a position as prevents rotation of the elastic member centered on a support
4 point of said stopper.

1 14. A rotary disk storage device comprising:
2 a housing;
3 a rotary disk recording medium, said rotary disk recording medium having a
4 data area and being rotatable about a spindle shaft supported by a bottom of said housing;
5 a slider to which a head is attached to read data from said rotary disk recording
6 medium;
7 a suspension assembly to which said slider is attached;
8 an actuator assembly to which said suspension assembly is attached, said
9 actuator assembly being adapted to turn about a pivot shaft so that said head moves between
10 said data area and a retraction area, said pivot shaft being supported by the bottom of said
11 housing; and
12 a stopper including an elastic member cantilevered by a support rod, wherein,
13 when any portion of said actuator assembly comes into abutment against said elastic member,
14 the elastic member undergoes a moment of force so as to restrict an excessive movement of

15 said actuator assembly to an inner or an outer side, and cushions said abutment, and said
16 support rod is disposed outside a turning track of a turning end of said actuator assembly.

1 15. The rotary disk storage device according to claim 14, further
2 comprising a ramp, wherein said actuator assembly causes said slider to be positioned and
3 retracted to said ramp.

1 16. The rotary disk storage device according to claim 14, wherein said
2 retraction area is formed on said rotary disk recording medium, and said actuator assembly
3 causes said slider to be retracted to said retraction area.

1 17. The rotary disk storage device according to claim 14, wherein a coil
2 support of said actuator assembly is formed in a bifurcated shape, and said stopper is
3 disposed inside said bifurcated shape.

1 18. The rotary disk storage device according to claim 17, wherein the
2 portion of either the outer or the inner side of said elastic member of said stopper, against
3 which said actuator assembly turns into abutment, is formed in a shape having a shock
4 absorbing property that prevents rebounding of the actuator assembly upon abutment, while
5 the portion of the other outer or inner side of said elastic member, against which said actuator
6 assembly turns into abutment, is formed in a shape having a shock absorbing property that
7 permits the actuator assembly to stop substantially in the same position upon abutment.

1 19. The rotary disk storage device according to claim 14, wherein a coil
2 support of said actuator assembly is bifurcated, and wherein said stopper is disposed in one of
3 two positions outside said bifurcated shape, while in the other position is disposed a stopper
4 for restricting an excessive movement of said actuator assembly to the inner or the outer side.

1 20. The rotary disk storage device according to claim 14, wherein a coil
2 support of said actuator assembly is formed in a bifurcated shape, and wherein said stopper is
3 disposed on either the outer or the inner side of said bifurcated shape, while on the other side
4 is disposed a stopper for restricting an excessive movement of said actuator assembly to the
5 inner or the outer side.

1 21. The rotary disk storage device according to claim 20, wherein the
2 portion of either the outer or the inner side of said elastic member as one of said stoppers for

3 restricting an excessive movement of the actuator assembly to the outer side, against which
4 the actuator assembly turns into abutment, is formed in a shape having a shock absorbing
5 property that prevents rebounding of the actuator assembly upon abutment, while the portion
6 of the other outer or inner side of said elastic member of the other stopper for restricting an
7 excessive movement of the actuator assembly to the inner side, against which the actuator
8 assembly pivots into abutment, is formed in a shape having a shock absorbing property that
9 permits the actuator assembly to stop substantially in the same position upon abutment.

1 22. The rotary disk storage device according to claim 19, wherein the
2 portion of either the outer or the inner side of said elastic member as one of said stoppers for
3 restricting an excessive movement of the actuator assembly to the outer side, against which
4 the actuator assembly turns into abutment, is formed in a shape having a shock absorbing
5 property that prevents rebounding of the actuator assembly upon abutment, while the portion
6 of the other outer or inner side of said elastic member of the other stopper for restricting an
7 excessive movement of the actuator assembly to the inner side, against which the actuator
8 assembly pivots into abutment, is formed in a shape having a shock absorbing property that
9 permits the actuator assembly to stop substantially in the same position upon abutment.

1 23. The rotary disk storage device according to claim 14, wherein said
2 elastic member of said stopper, when fitted on said support rod, comes into pressure contact
3 with the support rod.

1 24. The rotary disk storage device according to claim 14, further
2 comprising a lower yoke and an upper yoke, with a voice coil motor being installed inside
3 said lower and upper yokes to rotate said actuator assembly, said lower and upper yokes
4 imparting a rotational force to said voice coil motor by virtue of a magnetic field, and
5 wherein a rod projecting from said lower or said upper yoke is used as said support rod.

1 25. The rotary disk storage device according to claim 14, further
2 comprising a swivel stop fitted in an insertion hole formed in said elastic member, said swivel
3 stop being disposed in such a position as prevents rotation of the elastic member centered on
4 a support point of said stopper.

1 26. The rotary disk storage device according to claim 14, further
2 comprising a swivel stop abutted against an outer surface of said elastic member, said swivel

stop being disposed in such a position as prevents rotation of the elastic member centered on a support point of said stopper.

27. A rotary disk storage device comprising:
a housing;
a rotary disk recording medium, said rotary disk recording medium having a data area and being rotatable about a spindle shaft supported by a bottom of said housing;
a slider to which a head is attached to read data from said rotary disk recording medium;
a suspension assembly to which said slider is attached;
an actuator assembly to which said suspension assembly is attached, said actuator assembly being adapted to turn about a pivot shaft so that said head moves between said data area and a retraction area, said pivot shaft being supported by the bottom of said housing; and
a stopper including an elastic member, said elastic member being cantilevered by a support rod and with a magnetic material being embedded therein for attracting said actuator assembly, wherein, when any portion of said actuator assembly comes into abutment against said elastic member, the elastic member undergoes a moment of force so as to restrict an excessive movement of said actuator assembly to an inner or an outer side, and cushions said abutment, and said support rod is disposed outside a turning track of a turning end of said actuator assembly.